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REVIEWS

Recommendations of the Polish Society of Physiotherapy, the Polish Society of Family Medicine, the College of Family Physicians in Poland and the European Rural and Isolated Practitioners Association regarding the use of simple forms of physiotherapy, including massage and self-massage in primary care, endorsed by the Polish Society of Physiotherapy Specialists

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A – Study Design, **B** – Data Collection, **C** – Statistical Analysis, **D** – Data Interpretation, **E** – Manuscript Preparation, **F** – Literature Search, **G** – Funds Collection

Summary **Background.** In general practice, dysfunctions within the locomotor system are a recurring health issue. Most frequently, diagnoses and treatments relate to pain syndromes of the backbone, the shoulder girdle or the pelvic girdle. The authors believe that physiotherapy, along with other clinical disciplines, should be regarded as an important factor which influences the effectiveness of the therapeutic process in this area. In primary care, treatment of musculoskeletal disorders – especially at the stage of early clinical symptoms – should incorporate basic physiotherapy methods, e.g., massage, physical procedures, kinesiotherapy and the underrated education of the patient. Restoring appropriate spatial arrangement of tissues provides the right conditions for the regeneration and repair of muscles, ligaments and tendons, although it is a process that requires a long time. Therefore, it can be very important to introduce self-therapy in the form of systematically repeated, easy-to-replicate procedures in the scope of self-massage and self-kinesiotherapy.
Objectives. This paper presents the impact of physiotherapy in treating selected disorders and pain syndromes of the locomotor system with particular attention to the role of massage. Emphasis is placed on the meaning of self-massage in the process of restoring structural balance of tissues. The model of active inclusion of the patient in the treatment process as preparation for self-therapy is presented. This paper aims to justify the need to reorganize health services provided through general practicioners within the National Health Fund network by incorporating physiotherapy in primary care.
Key words: general practitioner, primary health care, pain.

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Background

In primary healthcare, the most frequently recurring health problems are dysfunctions within the musculoskeletal system [1–4]. Pain syndromes of the spine, shoulder and hip girdle are the most frequently diagnosed and treated [5–18]. For these diseases, mainly related to persistent pain, physiotherapeutic intervention may be a definitive and effective solution to the patient's problems – especially at the early stage of clinical changes [19–34].

Physiotherapy in primary care: justification for inclusion in general healthcare practice

The choice of methods in this field should comply with the principles of earliness, comprehensiveness, universality and continuity, thus referring to the rule of rehabilitation promoted and recognized globally by professor Dega [35].

Rehabilitation – and physiotherapy within it – is an integral part of the therapeutic process, so should it not be included as obligatory at the stage of primary care? The aforementioned professor Dega believed that according to the modern approach to rehabilitation, it should begin at the stage of basic treatment and should form an integral part of the therapeutic process [36].

However, such a perception of physiotherapy and its therapeutic and preventative tasks requires systemic approach. Problems to be solved concern the method of financing, organizing physiotherapy within primary care and determining the scope of services implemented. The range of services provided and the complexity of the physiotherapy procedures performed are dependent on the healthcare provider having the appropriate equipment and a certain amount of financial resources. The authors are aware of the fact that involvement of the National Health Fund as a payer is a necessary condition for the success of this project. With further analyses to confirm, it should be emphasized that the cost of physiotherapy in primary healthcare is relatively low. First of all, two basic activities could be included – therapeutic and educational ones (prevention and autotherapy) – which reduce expensive diagnostics. Physiotherapy, along with other clinical disciplines, should be seen as an important link which impacts the effectiveness of the therapeutic process, especially in relation to the musculoskeletal system. At the stage of primary care, fulfilling the principle of earliness, physiotherapy should be based on basic physiotherapy methods, i.e., massage, physical treatment, kinesiotherapy and the underestimated education of the patient [1–3].

It is equally important to maintain the therapeutic effect and prevent further incidence of pain, especially since disorders within the myofascial system are the cause of chronic pain, which negatively affects the patient's functioning. Over time, they lead to reduced autonomous activities and withdrawal from everyday activities, and thus to a loss of independence. This is also a cause of work absence and limitations in one's social life [1–3].

As a consequence, the quality of life is reduced in physical, mental and social aspects due to deteriorating motor functions. At the stage of primary care, the principle of continuity can be secured in two ways. Firstly, by introducing autotherapy as a necessary and complementary part, the patient can be directly involved in the treatment process. The principle of continuity refers to the continuation of rehabilitation undertaken outside the professional center, in this case, at home. Secondly, if the results of treatment are unsatisfactory, patients can be referred to a specialized center (ambulatory or stationary physiotherapy).

Massage and therapeutic effect

In order to properly trace and analyze the scientific literature on the current knowledge of the real effects of a massage on the body, first of all it is necessary to properly define what massage actually is and what it is not. As with all medical activities, the impact of massage on tissues should be strongly supported by basic science [37–38].

Based on this assumption, we can conclude that massage is a mechanical energy interaction within the limits of the elasticity of the tissues and organs on which it acts. On the one hand, this definition defines the degree of impact intensity (preventing damage to connective tissue elements or blood vessels – e.g., hematomas) and on the other hand, it requires a thorough analysis of the construction and structure of the organs and tissues which are massaged in terms of their displacement and elasticity. As an example, we can mention the complex structure of skin or muscle.

Only on the basis of analysis can we proceed to apply the most appropriate methods of distortion of these tissues. This principle also applies to the distortion of fascias, ligaments, tendons or articular capsules built mainly from connective tissue [39].

Therefore, theoretical knowledge about the histological structure of massaged tissues and knowledge of the physiological and pathological biological processes taking place within them is key to a therapist. It is especially important to understand the adaptive and regenerative processes which are initiated and – in the case of any damage – reparative and compensatory processes [40–41].

Naturally, we cannot omit knowledge of the reflex processes carried out by the nervous system and the proper distribution of tensions not only in muscles, tendons and fascias, but also in other internal organs which are in structural contact with the tissues forming the musculoskeletal system. The correct distribution of tension in tissues and organs can be described as structural homeostasis in the body [42].

Referring to the above-mentioned correlations, at least two ways that massage influences the body are assumed. The first one is the reflex action, which mainly affects the body by irritating the mechanoreceptors (touch and compression receptors, tendon receptors or intrafusal fibers) and thus modifies the distribution of resting tension in skeletal muscles [43–45].

This also influences the tension and peristaltic movement of smooth muscle tissue in blood and lymph vessels. Thanks to that, with an appropriate elastic distortion of strictly defined tissues and organs, taking into account their mobility and tolerance to distortion, we can very precisely influence both the optimal distribution of tissue tension and the proper distribution of blood and lymph in conditions requiring therapeutic intervention [46].

Taking advantage of the above-mentioned mechanisms, we can, through the use of physiotherapeutic methods (including massage), treat ailments resulting from increased tissue tension in order to prevent their formation and to protect against overload or ischemia. Such effects can be achieved after just one or several massage treatments [24, 26, 47].

The second influence of massage on the body is often forgotten and underestimated: the influence on structural changes in tissues and organs [48, 49].

Naturally, the fundamental question arises: Is such a relatively mild distortion of tissues and organs as massage able to cause any structural changes, especially in the connective tissue? The studies conducted so far undoubtedly have shown that if tendon, muscle or skin tissue undergoes multiple distortions, after a few weeks there will be significant, noticeable changes in them, indicating not only the reconstruction of the massaged tissue, but also the formation of new blood vessels, which is important in slowing down atrophic processes [50–52].

After insightful analysis of the contemporary scientific literature, we find evidence for such an impact of massage on tissues and organs. These are **mechanotransduction**, which is the basis for a better understanding of adaptation processes, and the resulting regeneration processes at the subcellular and cellular levels [53].

In the case of tissue damage, confirmation of the beneficial effect on reparation and compensation processes. The acculation of changes in massaged tissue further translates into changes occurring at the tissue level and at the organ level [49].

Obviously, a noticeable activation of these processes is only possible when a particular tissue or organ is systematically distorted every day (preferably 2–3 times a day) for several minutes for several weeks. This will create real opportunities to improve not only the proper distribution of tension in tissues and organs, especially in the musculoskeletal system, but also to slow down or even stop atrophic processes through the formation of new blood vessels and increased metabolic processes in the cells responsible for the structure and function of tissues and organs [40].

At this point the question arises of whether and how in clinical practice tissue changes can be initiated in patients with the basic problem of atrophic processes in their muscles, tendons, ligaments and blood vessels. The most reasonable way is to convince and teach the patient to perform the massage on his/her own. This form of massage can be called **self-massage**. This method of education has certain requirements for both the master (teacher) and the student (patient) in order to achieve full effectiveness in restoring disturbed tissue homeostasis through massage. The instructions must be given by a competent person who is knowledgable on the subject of massage and who understands the mechanotransduction processes involved in the adaptation, regeneration, repair and compensation of tissues [40, 41, 48].

The requirements concern not only practical skills but also the necessary knowledge in the field of human anatomy. Anatomy is particularly useful in practice for a quick palpation evaluation. The accuracy of the location of proper muscle insertions, the course of muscle bellies, blood vessels, lymphatic vessels and nerves is just the foundation of the right knowledge. Emphasizing the knowledge of anatomy is a key condition for the massage of strictly defined anatomical structures according to the accepted methodology. The second important element is the provision of auxiliary materials for the patient, which will allow for the performance of such massage at home. The best solution at the moment seems to be short instructional videos, which can be played both at home and on a walk in the park with a smartphone application. In Poland, relevant materials have been developed on behalf of the National Health Fund. These are widely available videos on self-massage for patients as well as an instructional film presenting a palpation evaluation of selected anatomical structures of the musculoskeletal system. The educational video allows patients to select the muscles potentially responsible for causing pain in an accessible way. In addition, it is a valuable source of advice on how to effectively perform self-massage in selected pain syndromes. The instruction and rules of self-therapy for massage, kinesiotherapy or physical therapy — with small, systemic organizational changes — could be implemented for patients in the area of PCC. In order to achieve this goal, a general practitioner and a trained physiotherapist are required. Most of all, the reorganization of the existing means of providing healthcare services is required.

Self-therapy in the process of treating a patient with locomotor dysfunctions in general practice

Clinical observation by the authors shows that it is recommended and even necessary to introduce self-therapy after an intervention which is supervised and managed by a physiotherapist. The main purpose of self-therapy and especially of treatment is to consolidate the therapeutic effect gained; this can only be achieved by independent, systematic repetition of simple physiotherapeutic forms. This is also confirmed by the fact that the processes of regeneration, repair and reconstruction of soft tissues require a much longer period of time than the duration of therapy performed by a physiotherapist [40, 41, 48, 54].

Properly working joints are the basis of general physical activity and independence in the most important activities, such as grip and gait [55, 56].

However, these activities require efficient muscles, which is why the introduction of simple therapeutic actions, such as self-massage — followed by the return of normal tension in the tissues and safe and simple forms of movement based on self-kinesiotherapy — may have a positive effect on the maintenance of healthy joints and may prevent the development of future dysfunction or slow down the process of destructive changes [57, 58].

A normal range of motion in the joint protects against injuries or falls and reduces the risk of them; therefore, it is extremely important and desirable to maintain a functional range of motion [59].

Many studies confirm that self-massage has a wide spectrum of action and plays a special role in the process of improving and increasing the flexibility of the muscle, without reducing its efficiency [59–61]. It also has a positive effect on increasing the range of motion in the joint [58, 62]. It has been proven that self-massage reduces pain and tissue sensitivity on compression [63–65]. Other studies found that self-massage combined with home exercise had a more beneficial therapeutic effect than just the intervention of a physiotherapist [63].

A study by Chan et al. shows that self-therapy is a tool which supports a physiotherapist's work – it is a continuation of therapy and a method used to maintain the resulting therapeutic effects [63].

It ensures the maintenance of independence in everyday activities. It should be emphasized that self-therapy requires instruction and education of the patient and control of the correct performance of both exercises and self-massage [63].

Self-therapy: benefits for the patient

Involvement, regularity, active participation in the therapy, self-awareness and cooperation with the physiotherapist are guarantees of a successful recovery [66–68]. The sense of responsibility and the ability to influence the level of physical activity and thus to maintain independence in everyday activities for as long as possible are strong arguments which can convince a patient to actively participate in the self-therapy [61, 69].

Self-therapy plays no less an important role in people with musculoskeletal disorders than in athletes from various sports disciplines. Self-massage, whether performed manually or with the use of special equipment, is used for the same purpose, i.e., for initiation, for muscle regeneration and repair processes in case of overload or damage [64].

It is a method of relieving pain immediately after injury. It is a method that minimizes the effects of injury and it allows for self-intervention in anticipation of proper therapy, consolidation of the therapeutic effect and prevention of further tissue injuries [61, 64].

Summary: physiotherapy and the future in securing health services within primary care

Analysis of the literature and our own observations show that the family doctor is faced with a growing problem of healthcare, not only in relation to emergency medical care, but also in relation to the chronic nature of the services provided [5, 6, 70, 71].

As a result of the prognosis of the growth of the elderly population, it will be particularly urgent to meet the needs of this

social group (which will apply equally to care provided in outpatient clinics and at home). Therefore, also from this point of view, the payer's consideration of cooperation between a family doctor and a physiotherapist may in the near future be a beneficial as well as a key variant in systemic solutions concerning the fulfillment of social expectations in the scope of guaranteed medical care. Trying to include physiotherapy in the form of self-massage or self-kinesiotherapy and simple, safe treatments with self-physiotherapy is a response to the expectations of many family doctors as well as patients receiving medical care in primary healthcare.

However, the ability to conduct safe self-therapy is determined by appropriate training. This is a task for the physiotherapist, to teach the patient how to use simple, safe forms of therapy at home and thus protect against the adverse events which sometimes occur while using various forms of manual therapy [72–75].

On the other hand, a general practitioner should acquire basic knowledge and skills in these issues. His/her role will be to encourage the patient to perform tasks related to self-therapy, to educate the patient, refer him/her to physiotherapy and cooperate with him/her, monitor the implementation of recommendations, correct the patient's actions in the event of mistakes and detect possible complications early on.

Arguments in favor of introducing self-massage to primary care

1. Massage is one of the safest forms of physiotherapy. There is no danger of stretching or overloading muscles, tendons or ligaments, which can be a problem in various forms of physical activity or physical exercises (including various forms of manual therapy) that are carried out within the scope of physiotherapy [72–75].
   Thus, self-massage, after a simple instruction from a properly prepared physiotherapist or massage technician, can be performed by the patient in all conditions without the danger of harming himself/herself.
2. Repeated, well-targeted self-massage performed on strictly defined muscles, tendons and ligaments can improve blood supply (stimulating processes of angiogenesis) and structure by increasing regenerative processes in fibroblasts. This is particularly important in the elderly, where we often have to deal with atrophic processes and the resulting limitations of efficiency and performance within the musculoskeletal system. An inefficient, non-functioning musculoskeletal system leads to overload and pain.
3. Introducing such an auxiliary form of therapy in primary care is associated with very low costs and a convenient form of employment for physiotherapists, e.g., emplyment contract or contract of mandate.
4. A very important element of introducing self-massage to primary care is the pro-health education of patients in the formation and prevention of pain in the musculoskeletal system. It cannot be overestimated how an educated patient, in case of the recurrence of pain in the musculoskeletal system, will be able to help himself, leading to a significant decrease in the number of visits to primary healthcare providers due to such problems. Improvement of the efficiency of the musculoskeletal system through systematic, daily self-massage (stimulating the formation of new blood vessels and collagen fibers), combined with targeted physical activity can be a very effective program for the prevention of disorders of the musculoskeletal system, not only of the spine, but also of the hip joint or shoulder girdle. Self-massage could be particularly useful in remote and rural areas where physiotherapy centers are not readily available. It could also be useful in those areas where physiotherapy is an "out-of-pocket expenditure", i.e., not reimbursed by the National or Regional Health Care services, especially for those who cannot afford it [76]. Self-massage could also be particularly useful in elderly patients, especially those patients on polypharmacy therapies. Painkillers are drugs with potential adverse side effects and if doctors are able to decrease the dosage of these drugs or – even better – to stop them, this could be beneficial for the patients [77, 78].

Practical notes for performing a massage service within primary care

1. Abidance of the patient's proper positioning during the massage

The most optimal position is when lying on the side, because it does not put pressure on the abdomen or chest (excessive pressure occurs while lying face-down; this is especially important for overweight people). This lying position is particularly important for spinal pain. The choice of position is not random but strictly defined, because it is associated with the need to obtain optimal tissue relaxation. For example, the appropriate positioning of the patient ensures that the iliopsoas muscle (through which the lumbar plexus passes) and the trapezius muscle of the lumbar (responsible for the stability of the lumbar spine) are relaxed, which is a key condition for performing a massage. Proper instruction of the patient in the best position to use will help in pain reduction at home, not only in the lumbar and sacral sections, but also in the thoracic or cervical sections of the spine.

2. Palpation assessment

Performing a proper palpation assessment on the indicated muscle attachments and bone points determine which muscles and ligaments show increased resting tension. This examination will allow for the isolation of the structures responsible for the formation of pain ailments indicated by the patient. Based on the palpation assessment, a massage strategy should be developed to determine which fascia, muscles and ligaments should be treated – and in which order – and to choose the appropriate massage techniques to achieve the desired effective.

3. Massage strategy choice

When developing a massage strategy, it is important to consider the structural correlation between muscles, fascias, ligaments and vessels and the nerves passing through or under them. This is very important for optimal massage effects. We are not able to significantly affect the balance of muscle tone within the lower limbs until we first normalize the tension of the iliopsoas muscle, through which pass the lumbar lexus, chich innervates, sensorially and motorically the anterior and medial part of the lower limb.

4. Principles of tension equilibration in massaged tissues

An important issue during the displacement and stroking of tissue during a massage is not only to pay attention to the selected muscles, fascia or ligaments affected by pain. The involvement of other structures in balancing the tension in the affected tissues should also be considered. Normalizing resting tension in one muscle, although it may cause a temporary effect of relaxation and relief, can also provoke a side effect. In some cases, transient pain reported by patients is observed in other areas of the body, e.g., headache, which may be the result of transient dysregulation of tension.

This is usually related to not considering the principle of balanced distribution of muscle tension determined by the principle of tensegrity, which is the basis of structural homeostasis in the body. This is particularly often the case with various forms of manual therapy, which, after the therapy, produce undesirable transient effects which have often been described in the literature [72–75].

With a properly performed massage, such side effects should not occur.

5. Therapy effectiveness verification

Once individual muscles or muscle groups have been treated, palpation should be reassessed in order to determine whether the tension has been normalized and pain reduced on their insertions. If there is no satisfactory improvement, then the massage should be corrected by choosing other techniques, extending the duration of the massage or repeating the palpation assessment.

6. Physiotheraphy: substantive requirements

A physiotherapist within primary care should freely use self-massage. In some cases, appropriate training will be required. Basic education obtained as part of physiotherapeutic education may be insufficient, especially for physiotherapists who were educated years ago or under different circumstances (full-time or part-time, bachelor's or master's studies). The current lack of teaching standards and the freedom among institutions of higher education in providing a certain number of massage hours may determine the skills of physiotherapists.

The sites of palpation assessment and the methods of massage and self-massage in the case of pain syndrome in the hip, shoulder and back are presented in Tables 1–5.

Table 1. Palpation assessment of muscles and their potential effect on vascular and nerve functioning within the hip joint [1]

Muscle	Site of palpation assessment	Commentary	Massage	Self-massage
Piriformis and gluteal medius	End trailer on greater trochanter of the femur	Pressure on superior and exterior hypophysial artery that may lead to disturbed blood supply in the hip acetabulum and to a disorder of sciatic nerve function	Thoracolumbar fascia: • gluteal medius muscle, • quadratus lumborum muscle, • piriformis muscle and • inferior constrictor muscle of the pharynx, on the trochanter minor	Thoracolumbar fascia: • gluteal medius muscle, • greater trochanter area and • iliopsoas muscle on the trochanter minor
Hip-adducting muscles	Median hip area (10 cm above the knee joint space)	Increased tension of hip-adducting muscles and possible irritation of obturator nerve by the obturator internus muscle – through which the inferior branch of the obturator nerve runs – or by the inferior constrictor muscle pharynx, through which the lumbar plexus, including the obturator nerve, runs		
Obturator externus muscle	End trailer in the femur over the trochanter pit (difficult access – only when lying on one's side)	Pressure on the obturator nerve inferior branch that innervates the hip-adducting muscles	Over the trochanter pit area in the location of the obturator externus attachment	Difficult access
Head straight quadriceps	Initial trailer on anterior interior iliac spine	Increased tension of this muscle has no significant effect on blood vessels or nerves	Quadriceps and the anterior inferior spina iliaca that is the initial attachment of the straight head	Quadriceps
Gluteus maximus muscle	Gluteal tuberosity of the femur		Gluteus maximus	Gluteus maximus
Tensor fasciate latae	Anterior superior iliac spine	Increased tension on the anterior iliac spine may lead to intensified tension of the inguinal ligament and pressure on the hip lateral sural nerve that runs through this ligament	Thoracic fascia, pectoralis major, superficial abdominal fascia, anterior part of the iliotibial band and the tensor fasciate latae	Thoracic fascia, pectoralis major, superficial abdominal fascia, anterior part of iliotibial band and tensor fasciate latae

Table 2. Palpation assessment of compression sensitivity of muscles and ligaments — painful shoulder syndrome [2]

Muscle	Site of palpation assessment	Commentary	Massage	Self-massage
Longissimus muscle and levatores costarum muscles 1–5	Transverse processes of the thoracic vertebra Th_{1-4}	In order to exclude irritation of the top five intercostal nerves: additional palpation examination on costal cartilage 1–5 in the area of the sternum (if pressure sensitivity appears in this place, it may indicate irritation of intercostal nerves and thus increased sensitivity of the top five ribs with the muscles attached to them: serratus anterior, pectoralis minor and major and the intercostal muscles). This is why it is accompanied by pain on the upper part of the scapula, the coracoid process of the scapula and the greater tubercle of the humerus. In this case, we should start by normalizing the resting tension of the levatores costarum muscles and by eliminating pressure tenderness in costal cartilage 1–5	Flexor halluces longus, tibalis posterior (spot rubbing on terminal attachments), semitendinosus and semimembranosus muscle, gluteus maximus, longissimus capitis and the levatores costarum muscles 1–5 until pressure pain on the cartilaginous elements of the ribs (1–5) disappears	Rubbing in the area of the intermediate line of the sacral bone at the attachment of the lateral side of the longissimus muscle and on the nuchal line of the lower occipital bone — at the place where the longissimus muscle attaches
Serratus anterior muscle, levator scapulae muscle, rhomboid minor muscle and supraspinatus muscle	Superior angle of the scapula	The examined muscles are attached in this spot; pain in the posterior part of the shoulder	Displacement and rubbing of the thoracolumbar fascia, middle part of the deltoid muscle, supraspinatus muscle, rhomboid muscle and levator scapulae muscle	Displacement and rubbing of the thoracolumbar fascia, middle part of the deltoid muscle
Pectoralis minor muscle, coracobrachialis muscle and biceps muscle – short head	Coracoid process of the scapula	Pain in the superior-anterior area of the chest and problems lifting and abducting the upper limb	Stroking of the biceps muscle, of the coracobrachialis muscle and at the end of the pectoralis minor muscle	Displacement and longitudinal kneading of the biceps muscle, rubbing of the coracobrachialis muscle
Supraspinatus muscle, infraspinatus muscle and teres minor muscle	Greater tubercle of the humerus	Point in the anterior area of the shoulder and problems abducting and lifting the upper limb	Stroking of the supra- and infraspinatus muscle and of the teres minor muscle, stroking of the lateral quadrangular space in order to normalize the functioning of the axillary nerve and posterior circumflex artery of the arm	Kneading and rubbing on the lateral edge of the scapula
Teres minor muscle	Lateral side of the scapula in 1/3 of its central part	Increased tone of the teres minor muscle may cause reduction of the quadrangular space housing the axillary nerve and the posterior circumflex artery of the arm, thus disrupting the functionality of the deltoid muscle		
Scalene muscles	Transverse processes of the cervical vertebra C_{3-6}	Potential for irritation of the brachial plexus (between the scalene muscles), which may be demonstrated by a disruption in feeling in the whole hand	Gluteus maximus, biceps femoris, semitendinosus, semimembranosus muscle, erector spinae muscle, neck fascia and scalene muscles	Rubbing on the dorsal surface of the sacral bone, stroking and displacement of the neck fascia
Pectoralis major muscle	Crest of the greater tubercle of the humerus	Point in the anterior area of the shoulder and problems with horizontal abduction of the upper limb	Stroking of the scalenus anterior muscle, stroking of the thoracic fascia in the inferior-anterior part of the chest and then of the pectoralis major muscle	Displacement on the scalenus anterior muscle in order to recover correct functionality of the internal thoracic artery, displacement on the anterior-inferior part of the chest, kneading of the pectoralis major muscle
Latissimus dorsi muscle	Lateral area of the spinous processes Th_{5-7}. External lip of the iliac ala at its highest point	Spot pain between the scapulae at the height of Th_{5-7} and difficulty lifting the upper limb	Gluteus maximus, thenar, hypothenar, anterior group of the forearm, medial intermuscular septum of the arm and the latissimus dorsi	Thenar, hypothenar, anterior group of the forearm, medial intermuscular septum of the arm, the lateral edge of the latissimus dorsi

Table 2. Palpation assessment of compression sensitivity of muscles and ligaments — painful shoulder syndrome [2]				
Muscle	**Site of palpation assessment**	**Commentary**	**Massage**	**Self-massage**
Trapezius dorsi muscle: – ascending part, – transverse part and – descending part	Triangular beginning of the scapula spine, upper border of the scapula spine and upper border of the shoulder end of the clavicle	Difficulty lifting the upper limb. Pain between the scapulae. Pain in the temporal area of the head caused by increased tension of the temporal fascia being in structural contact with the galea of the head and with the descending part of the trapezius dorsi muscle	Stroking of the trapezius dorsi muscle	Access only to the transverse and descending parts; rubbing and displacement of the muscle using the opposite hand
Deltoid muscle: – anterior part, – central part and – posterior part	Upper arm protuberance of the humerus	Difficulty abducting and lifting the upper limb	Before stroking the anterior part of the deltoid muscle, in order to increase effectiveness of the massage, one may first stroke the descending part of the trapezius dorsi muscle; as for the posterior part of the deltoid muscle, one may stroke the transverse part of the trapezius muscle	Rubbing and displacing the deltoid muscle in a sitting position, with the forearm resting on a table or a desk, so that the shoulder is slightly away from the body and decompressed

Table 3. Palpation assessment of compression sensitivity of muscles and ligaments – cervical back pain syndrome [3]				
Muscle	**Site of palpation assessment**	**Commentary**	**Massage**	**Self-massage**
Longissimus cervicis levatores costarum 1–5	Transverse processes of the $Th_{1–4}$ thoracic vertebrae	In order to exclude irritation of the five upper intercostal nerves, an additional palpation assessment of the cartilaginous ribs 1–5 in the vicinity of the sternum (compression sensitivity at this site will indicate irritation of the intervertebral nerves and thus sensitivity of the five upper ribs and the attached muscles: serratus anterior, pectoralis minor and major and the intercostal muscles)	Semitendinosus and semimembranosus, gluteus maximus, longissimus cervicis, levatores costarum 1–5 until compression tenderness on the cartilaginous ribs 1–5 resolves	Rubbing in the area of the intermediate linea of the sacral bone at the site of the attachment of the lateral part of the longissimus cervicis and the inferior nuchal line of the occipital bone, the place where the longissimus cervicis attaches
Scalene muscles	Transverse processes of the $C_{3–6}$ cervical vertebrae	Possibility of irritation of the brachial plexus (passing between the scalene muscles), which could be manifested by sensation problems within the whole palm	Gluteus maximus, biceps femoris, semitendinosus and semimembranosus, erector spinae, cervical fascia and scalene muscles	Stroking and moving of the cervical fascia, rubbing within the lateral part of the inferior nuchal line of the occipital bone
Multifidus suboccipital muscles	Transverse processes of the two first cervical vertebrae	A feeling of cracking in the atlantooccipital joints, the potential for dizziness when bending forward due to irritation of the vertebral arteries		
Serratus anterior, levator scapulae, romboid minor and the supraspinatus muscles	Upper-right angle of the shoulder blade	The assessed muscles are attached here	Moving and rubbing of the thoracic-lumbar fascia, the central part of the deltoid, supraspinatus muscle, rhomboid and levator scapulae	Moving and rubbing of the thoracic-lumbar fascia, the central part of the deltoid

Table 4. Palpation assessment of compression sensitivity of muscles and ligaments – thoracic back pain syndrome [3]

Muscle	Site of palpation assessment	Commentary	Massage	Self-massage
Matissimus dorsi	Lateral sides of the Th_{5-7} spinous processes	In the case of compression sensitivity, check for coexisting tenderness in the medial epicondyle of the humerus and dysfunction of the ulnar nerve (it pierces through the medical intermuscular septum of the arm pulled by the tendon of the latissimus dorsi)	Gluteus maximus, thenar, hypothenar, anterior group of the forearm, medial intermuscular septum of the arm and latissimus dorsi	Thenar, hypothenar, anterior group of the forearm, medial intermuscular septum of the arm and the lateral edge of the latissimus dorsi
Trapezius	Ascending part – the triangular beginning of the shoulder blade. Transverse part – the upper edge of the shoulder blade crest. Descending part – the upper edge of the shoulder part of the clavicle		Deltoid and trapezius — the ascending transverse part	Deltoid
Rhomboid major interior part of the serratus anterior infraspinatus muscles	Medial edge of the shoulder scapula	On the medial edge of the shoulder scapula, these three muscles grow together	Thoracic-lumbar fascia, rhomboid major, infraspinatus muscle and serratus anterior	Thoracic-lumbar fascia
Iliocostalis longissimus thoracis levatores costarum 6–12	Transverse processes of the Th_{5-12} vertebrae	In order to exclude irritation of the Th_{6-12} intervertebral nerves, perform an additional palpation evaluation on the Th_{6-12} cartilaginous ribs in the vicinity of the sternum	Gluteus maximus, biceps femoris, semitendinosus and semimembranosus muscles, adductor magnus, erector spinae at the level of the chest, levatores costarum until compression tenderness on the cartilaginous ribs 6–12 resolves	Gluteus maximus; iliocostalis muscle at the level of the lumbar part, rubbing in the region of the upper posterior iliac spine and the dorsal surface of the sacrum

Table 5. Palpation assessment of compression sensitivity of muscles and ligaments — lumbar–sacral back pain syndrome [3]				
Muscle	**Site of palpation assessment**	**Commentary**	**Massage**	**Self-massage**
Piriformis gluteus medius	Posterior upper surface of the greater trochanter of the femur	Potential for upper and lower gluteal artery disorders, including sciatica	Thoracic–lumbar fascia: • gluteus medius, • quadratus lumborum, • piriformis, iliopsoas on the lesser trochanter	Thoracic–lumbar fascia: • gluteus medius, • region of the greater trochanter and iliopsoas on the lesser trochanter
Adductor femoris	Medial surface of the thigh (10 cm above the fissure of the knee joint)	Increased tension in the adductor femoris, the potential for irritation of the obturator nerve by the external obturator muscle, through which the posterior branch of the obturator nerve passes, or by iliopsoas, through which the lumbar plexus crosses, including the obturator nerve		
Lumbar plexus	Medial surface of the tibia	Hypersensitivity at this site is a symptom of irritation of the saphenous nerve, which is a part of the lumbar plexus		
Quadratus lumborum	Inner lip of the iliac bone in the paraspinal part	Hypersensitivity at this site indicates an increased tension of the quadratus lumborum and iliopsoas, as these two muscles fuse together on the inner lip of the iliac crest		
Sacrotuberous ligament and erector spinae	Lateral edge of the sacrum	In the case of compression sensitivity, muscle tension will be increased in the structures remaining in contact with the sacrotuberous ligament: erector spinae, gluteus maximus, biceps femoris, semitendinosus and semimembranosus muscles and the adductor magnus	Sacrotuberous ligment: • gluteus maximus, • biceps femoris, • semitendinosus and semimembranosus muscles, • adductor magnus and • erector spinae	Gluteus maximus: • biceps femoris, • semitendinosus and semimembranosus muscle andadductor magnus
Iliocostalis band of the loin (lateral part of the erector spinae)	Upper posterior iliac spine	In the case of compression sensitivity, the final attachments to the angles of the lower ribs (VI–IX) will also have increased sensitivity – difficulty breathing and pain during deep exhalation		

Self-massage: practical advice for patients and caretakers

The most optimal position for self-massage is the sitting position with the upper limb leaning on a table or desk. It allows most of the massaged tissues to be relaxed. Additional support of the upper limb against a table or desk relieves the muscles in the shoulder girdle or spine. A very important argument in favor of a sitting position is the ease of performing self-massage in everyday conditions, either at home, at work or on a walk in the park. Of course, such self-massage can be performed in other positions, e.g., in lying down, but access to some muscles will be much more difficult. Examples of difficult access to muscle attachments in the supine position are the iliopsoas, deltoid or latissimus dorsi.

After competent instruction from a physiotherapist, the effectiveness can significantly increase when second person provided support. During such a massage, the action can simultaneously cover a larger number of muscles, which in some cases are not available for self-development (e.g., paravertebral muscles). Self-massage can also be performed in loose clothing, which is especially important if it is to be carried out outside the home. The time that a patient should spend performing self-massage is a few to several minutes. The number of repetitions of each technique ranges from 8 to 10. However, the most important element of self-massage is its systematic regularity. A patient should diligently massage the area indicated by their physiotherapist even 2–3 times a day for a period of 3 weeks, because this is the only way that the patient can improve their condition through self-massage. This not only results in muscle relaxation, but it can also initiate beneficial structural changes (the formation of new blood vessels and the reconstruction of collagen fibers). Self-massage can be fully effective when it is occasionally verified with check-ups by the pshysiotherapist.

Conclusions

1. A case for observing the rules of the Polish school of rehabilitation in the general practice therapeutic process is presented.
2. An approach for including physiotherapy and its therapeutic and preventative function within the primary care system and notes regarding solutions within the National Health Fund are provided.
3. Inclusion of self-therapy as an important factor in maintaining therapeutic effects is recommended.
4. Strategies for performing self-massage in practice, consisting of instructions for patients and carers, are presented.

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